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**Pablo Agustín Tedesco**



**Hugo L. López y Justina Ponte Gómez**

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# **Semblanzas Ictiológicas**

**Pablo Agustín Tedesco**



**Hugo L. López y Justina Ponte Gómez**

**ProBiota**  
División Zoología Vertebrados  
Museo de La Plata  
FCNyM, UNLP

**2013**

**Imagen de tapa**

**Pablo y Anahí Tedesco**

*El tiempo acaso no exista. Es posible que no pase y sólo  
pasemos nosotros.*

**Tulio Carella**

## **Semblanzas Ictiológicas**

A través de esta serie intentaremos conocer diferentes facetas personales de los integrantes de nuestra “comunidad”.

El cuestionario, además de su principal objetivo, con sus respuestas quizás nos ayude a encontrar entre nosotros puntos en común que vayan más allá de nuestros temas de trabajo.

Esperamos que esta iniciativa pueda ser otro nexo entre los ictiólogos de la región, ya que consideramos que el resultado general trascendería nuestras fronteras.

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## Cuestionario

- **Un libro:** Ética para Amador, Fernando Sabater
- **Una película:** El curioso caso de Benjamin Button
- **Un tema musical:** La sinfonía del nuevo mundo, A. Dvorak
- **Un artista:** mi hermano
- **Un deporte:** el tenis
- **Un color:** el del buen vino
- **Una comida:** las empanadas de mi mama
- **Un animal:** el hombre
- **Una palabra:** 'slow'
- **Un número:** 4
- **Una imagen:** Racing campeón del Clausura 2001 en un país sumido en el caos
- **Un lugar:** Catalunya
- **Una estación del año:** la primavera
- **Un nombre:** Anahí
- **Un hombre:** Charles Darwin
- **Una mujer:** mi mujer
- **Un personaje de ficción:** el Eternauta
- **Un superhéroe:** el chapulín colorado



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COMMUNITY ECOLOGY - ORIGINAL PAPER

## River hydrological seasonality influences life history strategies of tropical riverine fishes

P. A. Tedesco · B. Hugueny · T. Oberdorff ·  
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**Abstract** Under a particular set of selective forces, specific combinations of traits (strategies) will be favored in a given population, within the particular constraints of the considered species. For fishes, three demographic strategies have been suggested to result from adaptive responses to environmental predictability (i.e., seasonality): periodic, opportunistic and equilibrium [Winemiller KO, Rose KA (1992) Patterns of life-history diversification in North

American fishes: implications for population regulation. *Can J Fish Aquat Sci* 49:2196–2218]. These strategies optimize fitness within predictable, unpredictable and stable systems, respectively. We tested these predictions of life history trait distribution along a gradient of hydrologic seasonality in West African tropical rivers at the drainage basin scale. We used logistic regression of species presence–absence data to test whether dominant life history traits of species caused community compositional change in response to a gradient of seasonality in hydrologic regime across basins. After accounting for taxonomic relatedness, species body size and statistical redundancy inherent to related traits, we found a higher proportion of species producing a great number of small oocytes, reproducing within a short period of time and presenting a low degree of parental care (the periodic strategy) in highly seasonal drainage basins (e.g., rivers with a short and predictable favorable season). Conversely, in more stable drainage basins (e.g., rivers with a wet season of several months), we observed a greater proportion of species producing small numbers of large oocytes, reproducing within a long period of time and providing parental care to their offspring (the equilibrium strategy). Our results suggest that distributions of tropical freshwater fishes at the drainage basin scale can be partly explained by the match between life history strategies and seasonality gradients in hydrological conditions.

**Keywords** Fish communities · Demographic strategies · Hydrological variability · West African rivers

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**Electronic supplementary material** The online version of this article (doi:10.1007/s00442-008-1021-2) contains supplementary material, which is available to authorized users.

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### Introduction

An organism's life history has been defined as "a set of co-adapted traits designed by natural selection, to solve

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RESEARCH  
PAPER

## Patterns and processes of global riverine fish endemism

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## ABSTRACT

**Aim** To explore global patterns of riverine fish endemism by applying an island biogeography framework to river drainage basins and highlight evolutionary mechanisms producing two kinds of endemism: neo-endemism, arising from within-drainage cladogenetic speciation, and palaeo-endemism, arising from species range contraction or anagenetic speciation.

**Location** World-wide.

**Methods** We use a uniquely comprehensive data set of riverine fish species distributions to map global fish endemism patterns. We then use the relationships between (1) total species richness and proportions of endemic species and (2) total species richness and a measure of *in situ* (i.e. within-drainage basin) probability of speciation by cladogenesis, to identify the two distinct forms of endemism. After separating drainage basins into two different sets according to dominance of one of these two forms, we apply a model averaging procedure to highlight, for both datasets, the environmental and historical variables that better explain endemism patterns. We finally analyse the effect of biotic components related to dispersal ability on the percentages of both kinds of endemism among lineages.

**Results** Our results indicate that the two types of endemism are distributed differently across space and taxonomic lineages: (1) neo-endemism, positively related to the overall richness of the drainage basin, is essentially linked to *in situ* cladogenetic speciation and is positively related to drainage basin area, negatively related to climate variability since glacial periods and negatively related to all proxies of dispersal ability; and (2) palaeo-endemism, not directly contributing to drainage basin richness, is a pure process of extinction through range contraction and/or isolation through time and is mostly related to geographic isolation, glacial history and positively related to marine-derived origin of families.

**Main conclusions** The non-random spatial and taxonomic distribution of neo-endemism and palaeo-endemism sharply reflects the role of evolutionary processes and provides a way to identify areas of high conservation interest based on their high present and future diversification potential.

## Keywords

Dispersal ability, freshwater fish, glacial maximum, global distribution, island biogeography, isolation, neo-endemism, palaeo-endemism, speciation.

## INTRODUCTION

At large geographic scales, evolutionary and ecological hypotheses have long competed as major determinants of present-day biogeographic patterns of diversity. They have shaped the past decades of research, producing numbers of biogeographic

models (MacArthur & Wilson, 1967; Goldberg *et al.*, 2005) and explanations (Dynesius & Jansson, 2000; Jablonski *et al.*, 2006; Mittelbach *et al.*, 2007) at the interface of biogeography, ecology and evolution. In this context, endemic species have always been fascinating because they should reflect the roles of speciation, extinction and dispersal ultimately responsible for their





Chapare, Bolivia, 2004

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## **ProBiota**

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